

My view is such that there are four (4) equally possible first causes of the creation of the Universe: God, the higher specie, computer simulation and Nature either in continuous cyclical form, e.g. Penrose's CCC, or Ex Nihilo. For the creation Ex nihilo I have my own theory which I called "Logical Transition". The odds of any of these possibilities are 1:4 or 25%. None of them is provable or disputable. All 4 are in superposition. Here's some quantum physics at the start.

From ancient astronomers of China and India, antiquity, through Copernicus and Galilei, Newton to Einstein, human understanding of the Universe has changed. For a long time it was believed in a static model but today the prevailing theory is The Big Bang. It is not an explosion, but an expansion of the spacetime, as described by the famous Albert Einstein, in four dimensions: 3 spatial and 1 temporal. The scientist is still right, indeed his entire postulates of relativity have been retained, many proven, but since then the Higgs boson has been found and we have come to new, intriguing insights into the nature of the reality. Underlying the Cosmos, on miniature, subatomic levels, different laws apply than those to which we are accustomed in everyday life, even in classical science. At the particle level, the laws of quantum physics apply: things are and are not at the same time and information travels instantaneously, without any delay, regardless of the distance called quantum entanglement. China is already developing quantum systems for communication (7400km apart video conference held between Beijing and Vienna).

The universe is isotropic and homogeneous. Isotropic means that it is equal in all directions, and homogeneous that it is of the same composition wherever we look. This is shown by the Hubble, and Planck, deep space image of background cosmic radiation, but the new James Webb space telescope will certainly capture very interesting scenes as well. I'm already enjoying obviously improved photos of space dust, from which new stars and

distant galaxies are formed under the influence of gravity. Little by little, Webb will advance our vision of the Cosmos like no telescope before. There are several reasons: we have not yet recorded in that part of the infrared spectrum, the position in the Lagrange 2 point and using a special shield which means that there is no interference with sunlight, state-of-the-art technology.

The biggest phenomenons in the universe:

Singularity – we must distinguish the initial, or the one from which the Universe emerged – derived by extrapolating galaxies, and the theoretical, mathematical singularities located at the center of the black holes. Theoretically because we haven't explored any black holes yet. In simplest terms, a point of Planck's magnitude 10^{-35} where all mathematical calculations lose meaning. The simplest singularity is the function $f(X) = 1 / X$ in which $X = 0$. How to divide by zero? And does this mean that in addition to the quanta of energy, there is also a quanta of spacetime?

Inflation – proposed by scientist Alan Guth and represents a period of ultra-rapid development after the initial singularity.

Gravity – as yet unexplained physical force, opposed to electromagnetic,

strong (between particles) and weak (decay). Some scientists believe in the existence of the gravitons.

The four laws of thermodynamics are:

- 0) If 2 systems are in thermal equilibrium with the third then the two are certainly in mutual thermal equilibrium.
- 1) The total energy of the isolated system is constant.
- 2) Heat does not spontaneously pass from a warmer to a cooler system or natural entropy has only one direction: from warmer to cold, not vice versa.
- 3) The entropy of the system takes on a constant value when the system temperature drops to absolute zero.

Newton's laws of motion:

- 1. The body remains still, or is in uniform motion, until it is acted upon by force.
- 2. The period of change of momentum corresponds to the force.
- 3. If two bodies act by force on each other, this force has the same strength

but opposite direction.

Elasticity is the body's ability to resist distortion and return to its original state after the influence of the distortive force has ceased.

Why am I mentioning these laws?

Because the Universe, in accordance with the second law of thermodynamics, inevitably dissipates its heat by expansion and is awaited by the fate described by the third law and the total energy cannot exceed the initial value, contained in the singularity, which is described by the first law.

Because given Newton's laws and elasticity, I can explain gravitational force as a tendency to return to the initial state of singularity that is counteracted by differentiation, (re) combinatorics, shuffling, embedding, perturbation and the introduction of the basic physical forces being electromagnetism, strong and weak force.

When we declare that something is limitless it immediately becomes infinite for us. We do not have to count each piece nor we can. But is it actually infinite or we just imagine it to be? Did you ever saw an infinite number? How do you know it exists? Well, it doesn't exist in any other way than mere speculation, based on the previous statistic pattern, expressed by the symbol "horizontal eight". It exists only as a never reached potential. We are always step behind, one minute late, if we chase it (destiny). Instead of chasing It – embrace It. Once you embrace It you do not have to follow It because It leads you. It is in the nature of the things to obey the cosmic laws. Like train on the tracks. If you turn – you fall. If you drive straight – you reach the station safe.

But Universe does not have to be limitless to be infinite for us. It is enough to be of unreachable margine. It is enough to look into the dark well without jumping. Undefined is as good as infinite for us humans. The only thing that needs no prior cause is Nothing. Nothing that has no boundaries. How can you determine the borders of Nothing? Hence, it immediately has infinite volume. Hence, it immediately has property and value. That is why I say: Unseen roots of no prior cause.

Neutron star – I roughly calculated that a teaspoon full of neutron star, if we could grasp it that way, weighs like the moon. There are pulsars and magnetars. Pulsars periodically increase the intensity of emission, and magnetars have magnetic fields around them due to the rotation. Chandrasekhar calculated the limit of 1.4 solar mass needed for a star, after consuming its fuel, to become neutron.

Black holes – can have a mass of 2-3 suns up to 100 billion solar masses. Primordial probably more. Some rotate and create a strong magnetic field. The Tolman-Oppenheimer-Volkoff limit, which is 3 solar masses, is needed in order for a star to collapse and create a black hole which is a step away from a neutron star. Some black holes have 2-3 masses of the Sun, so I take this TOV limit with reserve. There are ordinary black holes, formed by the collapsing star, and supermassive ones that are located at the center of every galaxy, except in anomalous ones, and act as an anchor that holds the galaxy together.

Dark matter – it counts for about 25% of the Universe unlike ordinary matter which is only about 5%. Transparent, it cannot be detected in the visible electromagnetic spectrum, but attracts or works by inflicting gravity. My theory is that electrons are degenerated or they can't jump into other energy states or transfer energy to other electrons, perhaps due to the extent separation, so they don't respond to a photon or there are no electrons at all. Can an atom be without electrons? At least not active. I don't know. Inform me if you know. I'm assuming Webb will detect something with his specific infrared sensors.

Dark energy – responsible for expanding the spacetime at a speed greater than the speed of the light in the vacuum (299 792 458 m/s). Are we going to achieve warp drive by avoiding Einstein's law of the highest possible speed in the Universe, c , by manipulating the fabric of the Universe instead of traveling through or across it? And is the dark energy actually a flash, pure gamma (and X-ray?) radiation, created by the annihilation of 70% matter and anti-matter in the initial stages of the creation, perhaps even during inflation or immediately after it?

Is the intergalactic vacuum, the so-called zero point energy, the remnant of the aforementioned annihilation and dark matter intermediate phase to the regular matter?

Do you know what you drink when you drink a glass of regular water - H₂O? You drink an element that was created at the very beginning of The Big Bang: Hydrogen, H, alongside Helium (He) and Lithium (Li). What an interesting element Helium is. I've seen Leitner's 1963. film about Helium's transition into the superliquid at least 20 times. After the Lambda point, at - 271 degrees Celsius, it passes into a quantum state: at the same time it has and does not have the viscosity as shown by experiments with porosity and kinetic energy transfer. Is and isn't simultaneously. Who would say?

Then, the next 22 elements are created in the nuclei of stars. But even that unimaginable energy, that boiling plasma hatch, wasn't enough to create elements heavier than Iron, Fe. For this purpose, stars had to explode as supernovae, creating gravitational waves and proving one of Einstein's theoretical predictions. Albert Einstein was incredibly smart. Certainly one of the greatest scientific minds of all time. But I am of the firm opinion that some of his conclusions have been misinterpreted which dispute I am open to discuss with the members of the academic circles. After all, other scientists also point out certain illogicalities. Or deconcentration in the thinking. Please, could one man, no matter how ingenious but still only one, discover all the secrets of the Universe over a period of just 20 years?

Do you know why light passes through some materials and some reflect or absorb it? Due to the interaction of photons and electrons or their mutual frequency correspondence - when the photon passes with greater or lesser refraction. If reflected then the frequency does not match. And if the frequencies are in a certain relation, interfere, then there is an absorption of energy and transformation into thermal or chemical. With the combined formulas $E = m c^2$ (Einstein) and $E = h \nu$ (Planck) we realize that everything has its own frequency, even mass.

In addition to the laws of thermodynamics and Newton's laws of motion of bodies, to understand the universe it is necessary to know Einstein's laws of relativity:

Einstein's theory of relativity

Special in 1905.:

- 1) the laws of physics are the same for all inert observers.
- 2) the speed of the light in the vacuum, C , is the same for all observers regardless of the speed of their motion or the speed of motion of the light source.

Moving clocks tick more slowly than the observer's static.

Light is "shortened" in the direction of motion of the object.

The speed of the light in the vacuum is the highest possible speed.

Gravitational waves can travel the fastest as that.

$$E = m c^2$$

General in 1907.-1915.:

Spacetime is curved.

The orbits of Mercury and binary pulsars are different from those proposed by Newton.

The rays of light curve passing by the source of the gravity and clocks tick more slowly.

Rotating objects drag spacetime along.

The universe is expanding and the farthest regions are expanding faster than the speed of the light, C .

Einstein's field equations.

There is an evidential order in the Universe: everything acts according to its fundamental role and is governed by the standard principles. Nothing happens without the prior cause and the consequence is always predetermined by the deciding factors involved in the equation. The answer is known before the question has been asked. Rationality and scepticism are

the building blocks of the scientific development. Intelligence and logic are the main characteristics of the Universe and its Creator whoever or whatever it may be. There is an order, certainly, there is a law. How else do you balance between different? And if there is a law someone had to create it.

Do not fall in the trap of thinking that Universe needed the First cause to exist because everything in the Universe has one or more prior cause(s) of its own. On the smallest scale we must contemplate quantum mechanically: your existence springs from your non-existence and vice versa. Zero equals minus one plus one or $0 = -1 + 1$, and reverse, by its nature. By pure logic and nothing else.

The age of the Universe is 13.8 billion years and the diameter is as much as 93 billion light years, which is due to the expansion of the spacetime. And that's just the visible part of the Cosmos. What is the actual size – we can only guess. Some estimates say it's at least 250 times bigger but we're not going to play with numbers.

It will be interesting to see when they read this essay in 100, 1000 or even more years how different their understanding of the Universe will be from the one presented here.

Finally, I would like to mention a several notable names in the field of cosmology: Carl Edward Sagan (late), Sir Arthur C. Clarke (late), Stephen Hawking (late) and, among living, Sir Roger Penrose.